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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,303	03/22/2004	Kazunori Hirabayashi	016907-1633	9165
22428 7590 01/18/2008 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER STOREY, WILLIAM C	
			ART UNIT	PAPER NUMBER
			4115	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/805,303

**Applicant(s)**

HIRABAYASHI, KAZUNORI

**Examiner**

William C. Storey

**Art Unit**

4115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 3/22/2004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 4, 9, 11, & 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishizuka et al. (US Patent 7200268), hereinafter referred to as Ishizuka.

Regarding claim 1, Ishizuka discloses an image processing device. Ishizuka discloses using PostScript to communicate from a client terminal to a printer through an image processing device, which reads on claimed image forming apparatus that forms an image on the basis of PDL information; as disclosed at column 4, lines 8-21. Ishizuka discloses a fine line image extracting section, which reads on claimed determining means; that extracts a thin line when there is a possibility of blurring or disappearance, which reads on claimed determination means for determining whether the PDL information is a line object that is drawn by a line drawing command; as disclosed at column 4, lines 55-58. Ishizuka discloses the image processing device generating raster data from the image data on the basis of a drawing command, which reads on claimed line drawing command; as disclosed at column 4, lines 9-10. Ishizuka discloses the thin line warning function processing the extracted line when it is at or

below a predetermined thickness, which reads on claimed comparison means for comparing, if the determination means determines that the PDL information is a line object that is drawn by a line drawing command, a value of the line width of the line object with a threshold of the line width; as disclosed at column 4, lines 46-51 and column 5, lines 12-14, 21-23, and 27-29. Ishizuka discloses that if the extraction passes the previous test, the thin line may be converted into a thick line, which reads on claimed changing means for changing, if a comparison result of the comparison means show that the value of the line width of the line object is less than the threshold, the line width of the line object; and drawing means for drawing the line object with the line width that is changed by the changing means; as disclosed at column 5, lines 24-27 and 39-40.

Regarding claim 3, Ishizuka discloses everything as applied above for claim 1. Ishizuka discloses that the fine line image extracting section may extract line images that are straight lines, circular arcs, or curves of any various shapes, which in conjunction with above, reads on claimed wherein the comparison means compares, if the determination means determines that the PDL information is composed of a polygon, a value of line width of the line object, which is composed of the polygon, with a threshold of the line width; as disclosed at column 4, lines 60-62.

Regarding claim 4, Ishizuka discloses everything as applied above for claim 1. Ishizuka discloses that once the line is found to be at a predetermined thickness or less, the thin line warning function outputs a warning message saying that there is a possibility of blurring, which reads on claimed wherein the comparison means executes

a comparison with a threshold that can determine whether the line object is likely to blur when the line object is drawn; as disclosed at column 5, lines 31-35.

Regarding claim 9, Ishizuka discloses everything as applied above for claim 1. As disclosed above, Ishizuka discloses the thin line warning function to determine whether the extracted line is at or less than a threshold and is the kind of line that needs processing responsive that check or whether the extracted line is above the threshold and is the kind of line that does not need processing responsive to that check, which reads on claimed detection means for detecting a kind of the line object, as disclosed above and at figure 2 and column 5, lines 21-29. Ishizuka discloses claimed means for changing the color of the line object, or the line width of the line object, or the color and line width of the line object, on the basis of a detection result of the detection means, as disclosed column 9, line 67 and column 10, lines 1-4.

Regarding claim 11, claim 11 is rejected upon the same reasoning as applied for claim 1. Changing from an apparatus to a program does not make the claim patentably distinct.

Regarding claim 12, claim 12 is rejected upon the same reasoning as applied above for claims 1 & 3. Changing from an apparatus to a program does not make the claim patentably distinct.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka in view of Torpey et al. (US Patent 6753976), hereinafter referred to as Torpey. Regarding claim 2, Ishizuka discloses everything as applied above. However, Ishizuka fails to distinctly disclose determining whether a particular object is a polygon or not. However, the examiner maintains that it was well known in the art to provide determining whether a particular object is a polygon or not, as taught by Torpey.

In a similar field of endeavor, Torpey discloses adaptive pixel management using object type identification. In addition, Torpey discloses classifying objects according to different types. Torpey discloses classifying objects as graphics objects including line art and text having a point size greater than a selected threshold, which reads on claimed determination means determines whether the PDL information is composed of a polygon; as disclosed at column 17, lines 15-17 and 42-45 and column 3, line 54.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ishizuka by specifically providing determining whether a particular object is a polygon or not, as taught by Torpey, for the purpose of rendering classified objects differently in order to result in a more desirable output image.

Regarding claim 13, Ishizuka and Torpey disclose everything as applied above for claim 2. Ishizuka discloses that the fine line image extracting section may extract line images that are straight lines, circular arcs, or curves of any various shapes, which in conjunction with above, reads on claimed wherein the comparison means compares, if the determination means determines that the PDL information is composed of a polygon, a value of line width of the line object, which is composed of the polygon, with a threshold of the line width; as disclosed at column 4, lines 60-62

5. Claims 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka in view of Nagase (US Patent 6890261).

Regarding claim 5, Ishizuka discloses everything as applied above for claim 1. The examiner maintains that it was well known in the art to provide a second comparison means for comparing a value of an attribute of a line object with a threshold of the attribute, second changing means for changing the value of the attribute of the line object in accordance with a comparison result of the second comparison means; and second drawing means for drawing the line object on the basis of the value of the attribute of the line object, which is changed by the second changing means, as taught by Nagase.

In a similar field of endeavor, Nagase discloses a game system, program and image generation method. In addition, Nagase discloses drawing the outline, which reads on claimed line image; of an image in a vicinity of an area in which the angle between the first vector and the normal vector is equal to or larger than a given angle,

and equal to or smaller than the right angle, which reads on claimed threshold. Nagase discloses that, thus, the thickness of the outline image can be controlled merely by checking the angle between the first vector and the normal vector, which reads on claimed second comparison means for comparing a value of an attribute of the line object with a threshold of the attribute; as disclosed at column 2, lines 30-36. Nagase discloses checking the angles between the vectors in order to determine the rate of change of a line. If the rate of change is of a lower decrement (more gentle) from the right angle, then the line will be thickened. If the rate of change is of a higher decrement (more abrupt) from the right angle, then the line will be thinned. This reads on claimed second changing means for changing the value of the attribute of the line object in accordance with a comparison result of the second comparison means; as disclosed at column 4, lines 36-43. Nagase discloses that the changes can be realized by drawing the outline image in the vicinity disclosed above, which reads on claimed second drawing means for drawing the line object on the basis of the value of the attribute of the line object, which is changed by the second changing means; as disclosed at column 8, lines 44-51.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ishizuka by specifically providing a second comparison means for comparing a value of an attribute of a line object with a threshold of the attribute, second changing means for changing the value of the attribute of the line object in accordance with a comparison result of the second comparison means; and second drawing means for drawing the line object on the basis of the value of the



attribute of the line object, which is changed by the second changing means, as taught by Nagase, for the purpose of generating an image that looks like it is handwritten and transposing a mathematical method.

Regarding claim 6, Ishizuka and Nagase disclose everything as applied above for claim 5. Claim 6 is rejected based on the same reasoning as applied for claim 5.

Regarding claim 7, Ishizuka and Nagase disclose everything as applied above for claim 5. Claim 7 is rejected based on the same reasoning as applied for claim 5.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka in view of Chevion et al. (US Patent 5204756), hereinafter referred to as Chevion.

Regarding claim 8, Ishizuka discloses everything as applied above for claim 1. However, Ishizuka fails to distinctly disclose all the teachings of claim 8. However, the examiner maintains that it was well known in the art to provide all the teachings of claim 8, as taught by Chevion.

In a similar field of endeavor, Chevion discloses a method for high-quality compression of binary text images. In addition, Chevion discloses a method of thickening diagonal lines that have the possibility of becoming "staircased," which reads on claimed blurry; in order to keep them smooth, while leaving sharp angles, such as right-angle intersections of lines, in order to maintain the subjective impression of a crisp image, as disclosed in columns 9 & 10. In order to be able to determine whether there is a sharp angle or a more gradual diagonal angle in order to differentiate processing, it is inherent that there must be some sort of angle extraction means, which

reads on claimed extraction means for extracting an angle of a screen pattern. The cross over point from sharp angle to gradual, diagonal angle would be the inherent threshold, which reads on claimed threshold. This and the above disclosure then read on claimed means for determining whether the line object is likely to blur, by comparing a value of an angle of the line object with a threshold for the line object, which is determined in consideration of the angle of the screen pattern that is extracted by the extraction means; and means for changing the line width of the line object in accordance with a determination result of the determining means.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ishizuka by specifically providing all the teachings of claim 8, as taught by Chevion, for the purpose of creating a subjective impression of a crisp image. Chevion talks of the staircase effect occurring from an expansion of the original image (column 9, lines 20-21), which similarly correlates to the blurring problems due to printing resolution change.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka in view of well known prior art (MPEP 2144.03).

Regarding claim 10, Ishizuka discloses everything claimed, as applied above (see claim 1); however, Ishizuka fails to disclose means for determining whether the line object is a color one or a monochromatic one. However, the examiner takes official notice of the fact that it was well known in the art to provide means for determining whether the line object is a color one or a monochromatic one.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ishizuka by specifically providing means for determining whether the line object is a color one or a monochromatic one, for the purpose of stopping the system from going to colors that are not needed in a monochromatic print.

Ishizuka discloses that once the line is found to be at a predetermined thickness or less, the thin line warning function outputs a warning message saying that there is a possibility of blurring, which reads on claimed means for determining whether the line object is likely to blur, on the basis of a determination result of the determining means; as disclosed at column 5, lines 31-35.

Ishizuka discloses claimed means for changing the color of the line object, or the line width of the line object, or the color and line width of the line object, on the basis of a detection result of the detection means, if the determining means determines that the line object is likely to blur, as disclosed column 9, line 67 and column 10, lines 1-4, 28-33 and figure 8. The user may select which of the above-mentioned conversion processes to use after thin line determination check with threshold.

***Citation of Pertinent Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Le (US 6608942) discloses a method for smoothing jagged edges in digital images.

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10. Sakuyama (JP 11-129547) discloses a method for processing image information and an information recording medium.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Storey whose telephone number is 571-270-3576. The examiner can normally be reached on Monday - Friday (Alternate Fridays off) 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jefferey F. Harold can be reached on 571-272-7519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C Storey/  
Examiner, Art Unit 4115

William C Storey  
Examiner  
Art Unit 4115

/W. C. S./  
/Jefferey F Harold/  
Supervisory Patent Examiner, Art Unit 4115